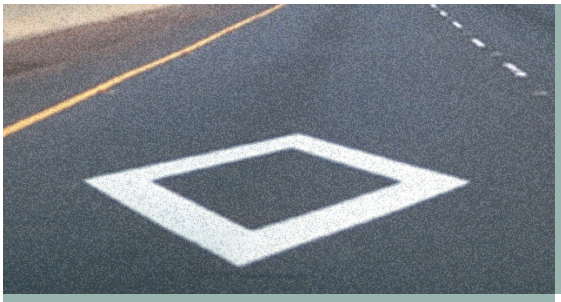


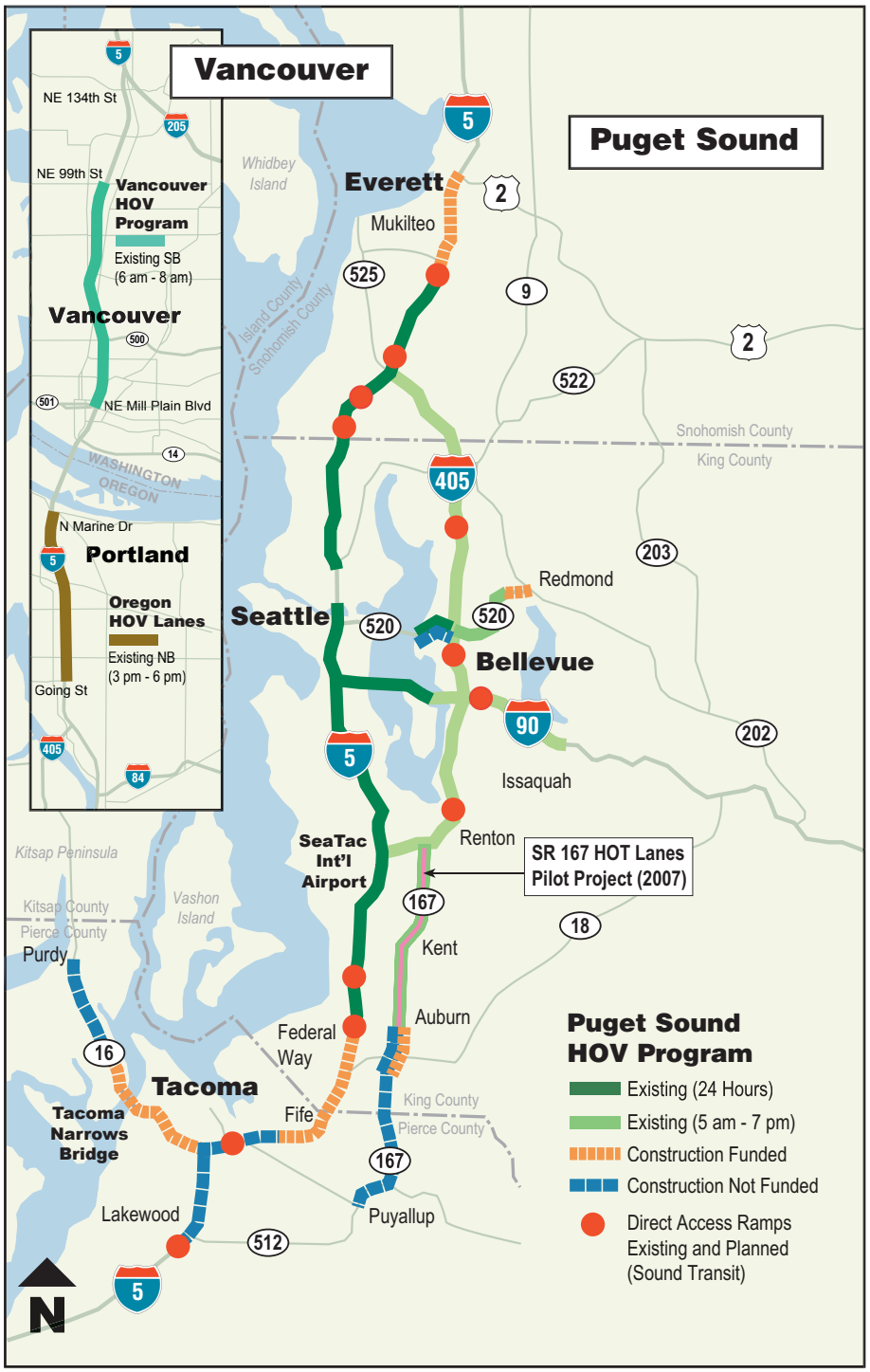
Washington State Freeway HOV System

March 2005

The Washington State Department of Transportation (WSDOT) freeway HOV system is a key part of our state's transportation. It makes efficient use of the transportation system by moving more people in fewer vehicles and helping to maintain transit speed and reliability. During rush hours, high occupancy vehicle (HOV) lanes move nearly a third of the people on Puget Sound freeways in only 17% of the vehicles. Since 1970, Washington State has invested over 1.5 billion of state and federal dollars in HOV lanes and ramps, building approximately 200 lane-miles of a planned 300-mile core HOV system.

HOV lanes are important for maintaining regional mobility and economic vitality. Because many general purpose freeway lanes are full or close to full during rush hours, the HOV system will be expected to accommodate an increasing share of travel growth in the future. This adds urgency to our efforts to complete the remaining 100 miles of the core HOV system.

Although HOV lanes are currently performing well, volumes are starting to reach capacity in a few places and are expected to be at or beyond capacity in several key corridors in the near future. WSDOT is working to find ways to preserve HOV lane performance and make the most efficient use of our highway system.



Washington State Department of Transportation

Freeway HOV System

March 2005

What Are HOV Lanes?

Freeway HOV lanes are reserved for people who share the ride in buses, carpools, and vanpools. Motorcycles are allowed to use freeway HOV lanes as well. These lanes are generally inside (left-side) lanes, and are identified by signs and a diamond on the pavement. Washington State has freeway HOV lanes in the Puget Sound region and the Vancouver area.

HOV lanes also exist on main surface streets. Surface street HOV lanes are not covered in this brochure.

How Do HOV Lanes Work?

HOV lanes on I-5 and portions of SR 520 (west of I-405) and I-90 (west of E Mercer Way) are in effect 24 hours a day, seven days a week. HOV lanes on the rest of our Puget Sound freeways are currently in effect between the hours of 5 am and 7 pm. The HOV lane in Vancouver is in effect between 6 am and 8 am only.

The occupancy requirement for freeway HOV lanes is two or more people. The only exception to this rule is the westbound lane on SR 520, where three or more people are required. Vehicles in HOV lanes during these hours which do not meet the occupancy requirement are subject to a $101 fine.

Why Should I Use HOV Lanes?

- **Faster trips:** While cars in other lanes are stuck in traffic, travelers in the HOV lanes usually move at 45 miles per hour or more.
- **Save money:** People who carpool, vanpool, or ride transit can save thousands of dollars on their annual commute costs.
- **Ease overall congestion:** When three solo drivers form a carpool or vanpool, two fewer cars are on the freeway.
- **Help the environment:** Less congested lanes lead to less pollution.

Why Build HOV Lanes?

- Improve the capacity of congested freeways to move people in the most efficient ways.
- Provide time savings and reliability for buses, vanpools, and carpools.
- Provide capacity for future growth in travel demand.
- Reduce impacts to the environment.

Efficiency

HOV lanes increase freeway efficiency. When traffic is congested many HOV lanes carry far more people than a regular lane of traffic. For example, HOV lanes on I-5 in north Seattle carry more than 2½ times as many people as any of the other lanes in that area during rush hours. Since HOV lanes are designed to maximize the movement of people rather than vehicles, they often have higher person through-put even when they look partially empty.

HOV lanes are one of many efficiency tools utilized or supported by WSDOT, including metered ramps and ramp bypasses, carpool and vanpool programs, traveler information systems, variable message signs, websites, incident management response teams, signal prioritization and synchronization, park-and-ride lots, and direct access ramps.

Reliability and Congestion Management

For those who share the ride, HOV lanes offer relatively fast and reliable travel, even when other traffic lanes are clogged. This in turn frees up space in the unrestricted lanes.

If HOV lanes were opened to all vehicles, the buses, vanpools, and carpools who use them would be slower and less reliable. If many of the people who currently share the ride then switched to driving alone, all of the freeway lanes would quickly become even more congested during rush hours.

Air Quality

Traffic congestion increases air pollution. The federal government supports adding HOV lanes to help reduce vehicle pollutants. Federal law requires both the Puget Sound and Vancouver/Portland areas to take action to maintain air quality. HOV lanes help to meet this goal by encouraging people to switch from driving alone to sharing the ride. HOV lanes also move traffic along faster, another factor in reducing vehicle emissions.

Washington State Department of Transportation

Into the Future

The current freeway HOV system works well, meeting or exceeding performance standards (45 mph 90% of the time) on 10 out of 14 corridor segments in the Puget Sound region. Where HOV lane speeds do not currently meet standards the source of the problem is usually merging traffic, slow downs at the end points of HOV lanes, and other physical problems with the roadway. WSDOT is studying ways of alleviating these congestion points.

WSDOT anticipates that increasing volumes will start to produce HOV lane slow downs in locations on I-5 and I-405 in the near future. To avoid volume-related congestion, changes in operating policy will be required.

Most HOV lane users are two-person carpools. If WSDOT were simply to raise the HOV lane occupancy requirement to three people, most of the HOV lanes would be instantly and dramatically underutilized. At the same time, congestion and delays in the general purpose lanes would increase. A different approach will therefore be necessary to keep HOV lanes moving.

WSDOT will be studying new ways to manage HOV lanes. Strategies that have been successfully implemented in other states include:

- **High Occupancy Toll (HOT) Lanes:** Lanes where free-flow conditions can be maintained by charging variable rate tolls to meter lane use.
- **Variable/Dynamic Lanes:** Lanes whose occupancy, direction, or operation can be adjusted throughout the day in response to traffic conditions, such as our reversible express lanes on I-5 and I-90.
- **Bus Rapid Transit (BRT):** Looking at ways to increase and improve express bus service in the HOV lanes.
- **Transit Shoulders:** Allowing buses to drive on freeway shoulders in certain areas under certain conditions.
- **Direct Access Ramps:** Ramps that drop HOVs right down into center HOV lanes, avoiding the need to weave across other freeway lanes, such as Sound Transit's newly opened ramps in Lynnwood and Bellevue.
- **HOV System Completion and Expansion:** Completion of the HOV System (as shown on the front cover of this brochure) and possible extensions, including more special use lanes on main surface streets.

Puget Sound freeway HOV lanes move 32% of the people in only 17% of the vehicles traveling in the peak direction during rush hours.

For more information on HOV lanes please visit:

www.wsdot.wa.gov/hov

Washington State Department of Transportation

Things That Help HOV Lanes Work Well

You may have noticed construction in the freeway median around Lynnwood, Federal Way, or Eastgate. Sound Transit and WSDOT are building *direct access ramps* which allow HOVs to directly enter and exit inside (left-side) HOV lanes without having to weave through other lanes of traffic. Direct access ramps save time, increase reliability, and maintain safer operations for both HOVs and general traffic.

The first direct access ramps, connecting Lynnwood Transit Center to I-5 HOV lanes, and Bellevue Transit Center to I-405 HOV lanes, opened in November and December of 2004. The location of other direct access projects are shown on the front cover of this brochure. For more information on the program please visit www.soundtransit.org/projects or www.wsdot.wa.gov/projects.

You may have also seen freeway on-ramps with an HOV lane next to them. These *ramp bypass lanes* allow buses and carpools to save even more time, bypassing back-ups at metered ramps.

Have Questions?

www.wsdot.wa.gov/hov

King and Snohomish County:
Charles Prestrud
206.464.1271
PrestrC@wsdot.wa.gov

Clark County:
Chad Hancock
360.905.2242
HancocC@wsdot.wa.gov

Pierce County:
Pasco Bakotich
360.357.2658
BakotiP@wsdot.wa.gov
or
Marty Garman
360.357.2617
GarmanM@wsdot.wa.gov

Americans with Disabilities Act (ADA)

Persons with hearing or sight disabilities may call the Washington State Telecommunications Relay Service at 7-1-1, or Voice 1.800.833.6384, and ask to be connected to 360.705.7097.

Civil Rights Act, Title VI Statement:

WSDOT hereby gives public notice that it is the policy of the department to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Act of 1987, and related statutes and regulations in all programs and activities. Persons wishing information may call the WSDOT Office of Equal Opportunity at 360.705.7095.

Hours of Operation Demonstration Project

In 2002, the State Transportation Commission directed WSDOT to look into ways of maximizing HOV lane efficiency. WSDOT conducted an *Hours of Operation* study which found unneeded HOV lane capacity after 7 pm on I-405 and other eastside highways. In the summer of 2003, after completion of $1.2 million in safety improvements required by the Federal Highway Administration, WSDOT commenced a demonstration project to open HOV lanes on freeways east of Lake Washington to general traffic between the hours of 7 pm and 5 am.

We have just completed the first year analysis of these new hours of operation. Our study found no negative impacts to transit or general traffic operations, and a slight improvement in congestion levels and speeds around 7 pm. Accident analysis is not yet complete, but preliminary results show no increased run-off-the road accidents. Public response to the new hours of operation has been favorable. The complete first year analysis may be viewed at www.wsdot.wa.gov/hov.

SR 167 HOT Lanes Pilot Project

The State Transportation Commission also directed WSDOT to evaluate the feasibility and potential benefit of building or converting one or more HOV lanes to high occupancy toll (HOT) lanes. HOT lanes allow the use of extra HOV lane capacity by charging a toll for the privilege.

After reviewing several options, WSDOT chose SR 167 between Renton and Auburn as the best location for a HOT lane pilot project. This test project will be the first HOT lane in the state and will provide more data to help determine if HOT lanes may be appropriate in other locations. Legislative approval and full funding will be required before the SR 167 HOT Lanes Pilot Project can proceed. The project is anticipated to open in 2007 if these steps are taken. Visit the SR 167 HOT Lane Project website at www.wsdot.wa.gov/hov.

Washington State Department of Transportation

Washington State Freeway HOV System Performance

The Washington State freeway HOV system helps provide reliable travel time and dependability for transit users and carpoolers. Approximately 200 miles of HOV lanes have been constructed in Central Puget Sound since 1970, and an additional five miles opened in Vancouver in 2001.

Performance standards have been established to ensure that these lanes meet their objectives. Separate standards exist for the Puget Sound and Vancouver areas.

Puget Sound

In Puget Sound, people driving in an HOV lane should be able to maintain an average speed of 45 mph or greater at least 90% of the time they use that lane during the peak rush hour, measured for a consecutive six-month period. Speed and reliability of the HOV system are continually monitored, and are published on the WSDOT HOV website at www.wsdot.wa.gov/hov.

Vehicles in the HOV lane should maintain an average speed of 45 mph or greater.

The 2002 results for Puget Sound show the majority of the HOV system is meeting this performance standard. However, four out of fourteen corridor segments did not meet this standard:

- I-5 Northbound, Northgate to South Everett
- I-5 Southbound, South Everett to Northgate
- I-5 Northbound, SeaTac to Georgetown
- SR 520 Westbound, Redmond to Medina

In these four corridor segments, the failures were spot locations where transit encounters steep hills, or where HOV lanes begin or end and merging occurs. These problems are being addressed.

The data also shows that HOV lane volumes are approaching levels that will result in slow downs and congestion on a number of freeway sections in the near future. This situation will require new approaches to HOV lane management.

Vancouver

There are eight performance goals that have been established for the Vancouver HOV lane:

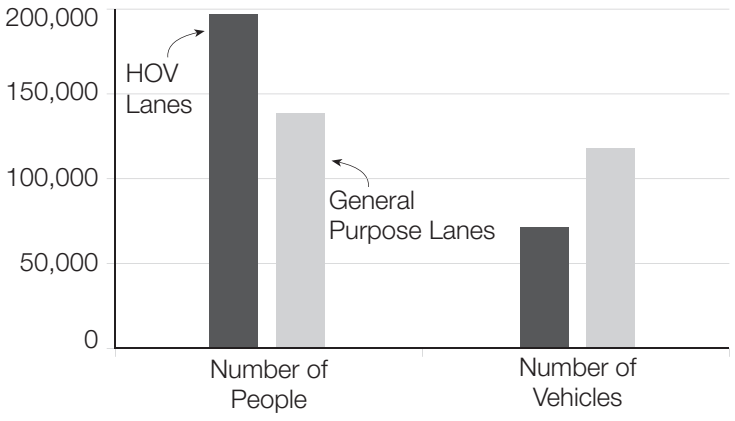
1. Move more people per lane in the HOV lane than in the adjacent lanes.
2. Reduce travel time for both HOV and general purpose lanes.
3. Minimize impacts to other traffic in the corridor and on parallel facilities.
4. Increase the use of carpools, vanpools, and transit.
5. Maintain safety.
6. Maintain HOV lane effectiveness with appropriate enforcement.
7. Maintain or improve reliability for transit, vanpools, and carpools.
8. Maintain or improve public opinion as to the effectiveness of HOV lanes.

The majority of these goals have been met. The Vancouver HOV lane is not currently meeting the first, second, or eighth goal.

People Moving Capability

HOV lanes work by moving more people than vehicles. Due to the higher average occupancy of HOVs, an HOV lane can appear relatively empty and still be moving many more people than the full lane next to it. Overall, HOV lanes move 32% of the people on area freeways in only 17% of the vehicles during peak commuting periods and directions in the Puget Sound region. For example, HOV lanes on I-5 in north Seattle carry more than 2½ times as many people as any of the general purpose lanes in that area.

Per-Lane Throughput Comparison
Peak Periods and Directions
All Monitoring Locations, 2002



Washington State Department of Transportation

Violation Rates and the HERO Program

The Washington State Patrol encourages HOV lane compliance through education and enforcement. The State Patrol issued approximately 70 written warnings, 2900 verbal warnings and 7800 tickets for HOV violations in 2004.

Violation rates in the Puget Sound area are quite low, typically averaging below 5% of total HOV lane volumes. Nationally the average violation rate runs from 10-15%.

The WSDOT HERO program encourages motorists to report HOV violators by calling (206) 764-HERO or by sending in electronic reports. HERO reports have increased annually since 1994, reaching 36,000 in 2004.

Violation rates in the Vancouver area typically range around 11%. No HERO program operates in the Vancouver area.

Two Year Demonstration Project: Hours of Operation

In the summer of 2003, WSDOT started a demonstration program which allows solo drivers to use HOV lanes between the hours of 7 pm and 5 am, seven days a week, on four of the five primary freeways in the region (I-405, SR 167, SR 520 east of I-405, and I-90 east of Mercer Island). The HOV lanes on I-5 remain an HOV-only facility at all times, as well as the western segments of SR 520 and I-90.

A slight decrease in congestion and minor increase in average speeds have been noticeable around 7 pm since the new hours of operation. Otherwise no significant changes in freeway performance, safety, or violation rates have been associated with the demonstration project. WSDOT will continue to monitor HOV system performance through the second year of the project.

What Does the Public Think?

WSDOT regularly asks Puget Sound drivers for their opinion about HOV lanes. Results show that both HOV lane users and solo drivers consistently support HOV lanes. The majority of respondents said that HOV lanes are convenient, time saving, and a good use of tax dollars.

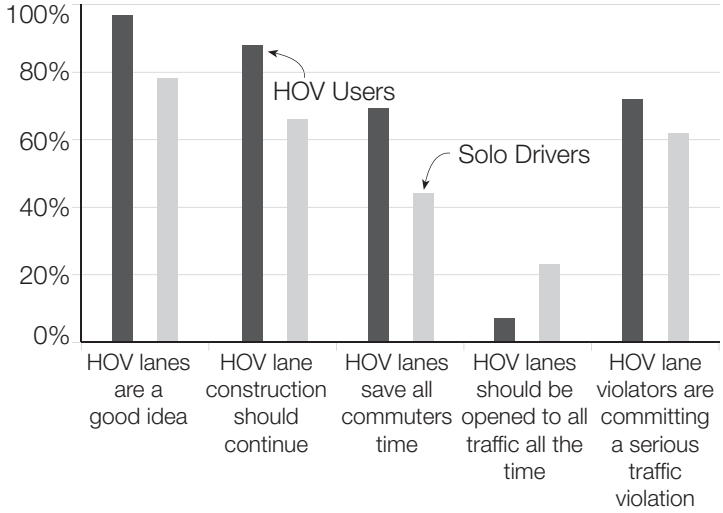
Survey highlights from 2004 include:

- The vast majority of both HOV and solo drivers say HOV lanes are a good idea.
- Both HOV and solo drivers agree that HOV lane construction should continue.
- 93% of HOV users and 77% of solo drivers felt that HOV lanes should not be opened to all traffic, all the time.
- A majority of respondents view HOV lane violations as a serious traffic offense and find value in the HERO program.

Although both HOV and solo drivers expressed support for HOV lanes, the survey did reveal some differences in opinion between these two groups. Noteworthy differences include:

- 44% of solo drivers believe that HOV lanes are not adequately used, while only 23% of HOV users agree with this.
- 72% of solo drivers and 49% of HOV users think that HOV lanes should be opened to all traffic during non-rush hours.

Public Opinion Survey
Winter/Spring 2004



Washington State Department of Transportation

For detailed survey information, please visit: http://www.wsdot.wa.gov/hov.